PELICAN POINT SUBDIVISION PWS 5340031
SOURCE WATER ASSESSMENT FINAL REPORT

October 22, 2004

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the act. This assessment is based on a land use inventory of the designated assessment area, sensitivity factors associated with the wells, and the aquifer characteristics.

This report, *Source Water Assessment for the Pelican Point Subdivision, Burley, Idaho* describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The Pelican Point Subdivision (PWS #5340031) water system consists of two wells. The system currently serves approximately 25 people through 15 connections.

Final susceptibility scores are derived from equally weighing system construction scores, hydrologic sensitivity scores, and potential contaminant/land use scores. Therefore, a low rating in one or two categories coupled with a higher rating in other categories results in a final rating of low, moderate, or high susceptibility. With the potential contaminants associated with most urban and heavily agricultural areas, the best score a well can get is moderate. Potential Contaminants/Land Uses are divided into four categories, inorganic contaminants (IOCs, e.g. nitrates, arsenic), volatile organic contaminants (VOCs, e.g. petroleum products), synthetic organic contaminants (SOCs, e.g. pesticides), and microbial contaminants (e.g. bacteria). Different wells can be subject to various contamination settings, therefore separate scores are given for each type of contaminant.

In terms of total susceptibility, both Well #1 and Well #2 rated moderate for IOCs and SOCs, and low for VOCs and microbial contaminants. System construction and hydrologic sensitivity both rated low for each well. Land use scores were high for IOCs, moderate for VOCs and SOCs, and low for microbial contaminants (Table 2).

No microbial contamination has ever been detected in either well. The IOCs sodium, fluoride, and arsenic have been detected in tested water, however concentrations of each are significantly within allowable limits. The well exists in a county of high nitrogen fertilizer, herbicide, and agricultural-chemical use. In addition, the well's delineation crosses a priority area for nitrate, as well as the pesticide atrazine.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific purpose.

For Pelican Point Subdivision, drinking water protection activities should first focus on maintaining the requirements of the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system's components and its capacity). Any spills from the potential contaminant sources listed in Table 2 of this report should be carefully monitored, as should any future development within the delineated area. Other practices aimed at reducing the leaching of agricultural chemicals from agricultural land within the designated source water area should be implemented. No chemicals should be stored or applied within the 50-foot radius of the wellhead, and that area should not be used to store anything. As most of the designated areas are outside the direct jurisdiction of Pelican Point Subdivision, partnerships with state and local agencies and industry groups should be established and are critical to success.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineation is near urban and residential land use areas. Public education topics could include proper lawn and garden care practices, household hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. There are transportation corridors near the delineation, therefore the Department of Transportation should be involved in protection activities. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil Conservation District, and the Natural Resources Conservation Service.

A system must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (e.g. zoning, permitting) or non-regulatory in nature (e.g. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Twin Falls Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR THE PELICAN POINT SUBDIVISION, BURLEY, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this source means.** A map showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are attached. The list of significant potential contaminant source categories and their rankings, used to develop this assessment, is also attached.

Level of Accuracy and Purpose of the Assessment

The Idaho Department of Environmental Quality (DEQ) is required by the EPA to assess the over 2,900 public drinking water sources in Idaho for their relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area, sensitivity factors associated with the wells, and aquifer characteristics. The resources and time available to accomplish assessments are limited. Therefore, an in-depth, site-specific investigation to identify each significant potential source of contamination for every public water system is not possible. **This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The ultimate goal of this assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. DEQ recognizes that pollution prevention activities generally require less time and money to implement than treating a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a drinking water protection program should be determined by the local community based on its own needs and limitations. Drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The Pelican Point Subdivision (PWS #5340031) water system consists of two wells. The system currently serves approximately 25 people through 15 connections.

No microbial contamination has ever been detected in the well. The IOCs sodium, fluoride, and arsenic have been detected in tested water, however concentrations of each are significantly within allowable limits. The well exists in a county of high nitrogen fertilizer, herbicide, and agricultural-chemical use. In addition, the well's delineation crosses a priority area for nitrate, as well as the pesticide atrazine.

Defining the Zones of Contribution – Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. DEQ used a refined computer model approved by the EPA in determining the time-of-travel (TOT) zones for water associated with the Goose Creek – Golden Valley aquifer in the vicinity of the Pelican Point Subdivision. The computer model used site-specific data, assimilated by DEQ from a variety of sources including local area well logs and hydrogeologic reports summarized below.

Deep aquifer wells extract water from basalt of the Snake River Group to the northeast and east and possibly the Idavada Volcanics to the south. The Snake River Group is a few thousand feet thick and consists of basalt flows with thicknesses ranging from a few to several tens of feet. Contacts between the basalt flows and rubbly zones are the best water producers. The basalt overlies the Idavada Volcanics.

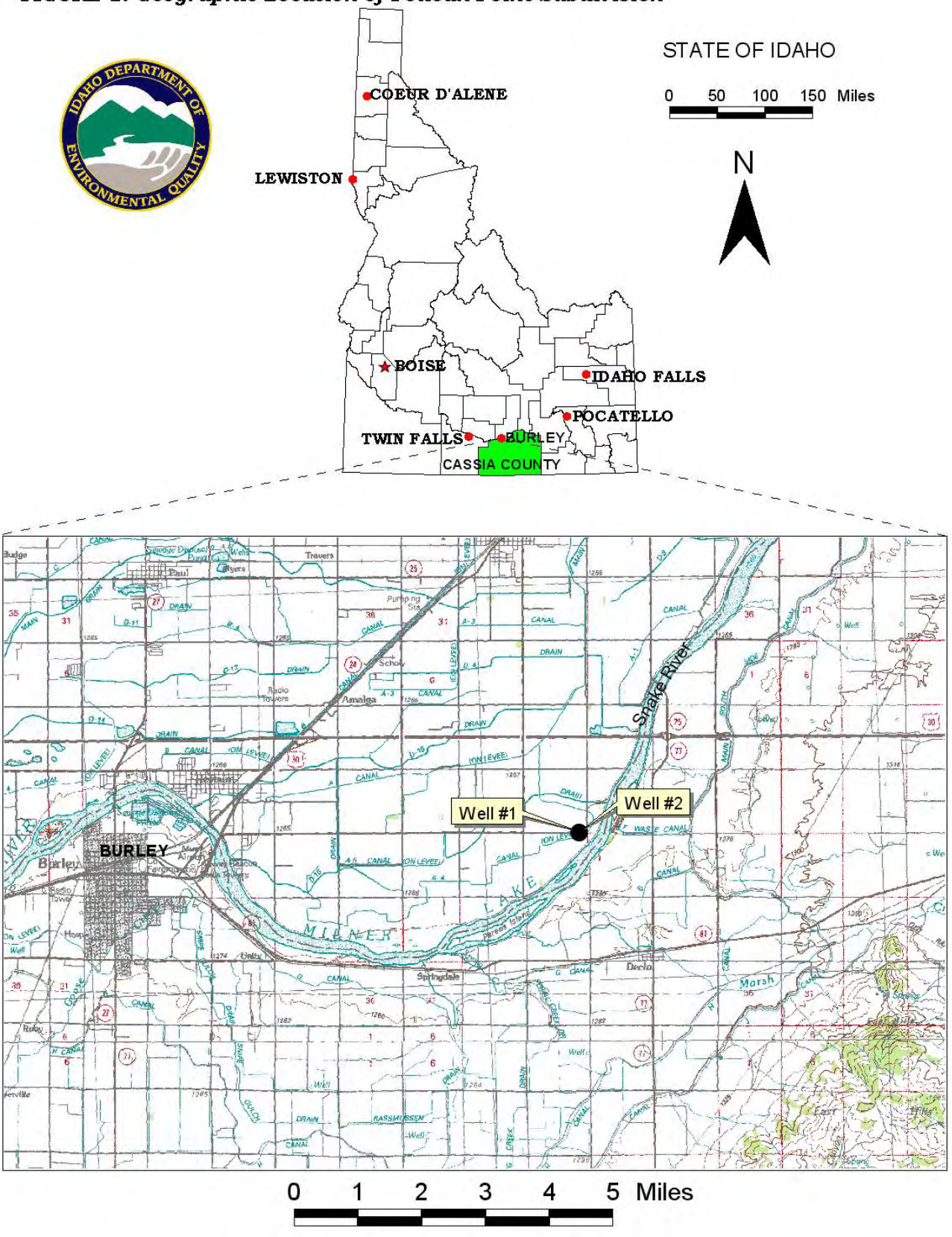
The Idavada Volcanics unit, locally referred to as rhyolite, consists of welded ash and tuff, rhyolite, and some basalt flows. The flows are dense and are commonly reddish-brown, gray, or black. The tuff and ash beds are fine to coarse grained, light colored, and commonly water laden (Crosthwaite, 1969).

Twenty-four years of records since 1964 set the average yearly rainfall in Burley at 8.6 inches

(Crosthwaite, 1969). The Albion Range and the fault zone at its base bound the plain on the southeast and the Rock Creek Hills bound the plain on the southwest. The lowland slopes northward from an altitude of about 4,600 feet at Oakley to 4,150 feet at Burley (Crosthwaite, 1969).

The regional Snake River Group basalts to the east and northeast mainly influenced the City of Burley delineation modeling. However, there was also a southerly component of the flow from the fault zone along the Albion Range. Previous modeling (Garabedian, 1992) in the area was used as a guide.

FIGURE 1. Geographic Location of Pelican Point Subdivision



The delineated source water assessment area for the Pelican Point Subdivision well can best be described as an eastward trending sector approximately 3 miles long which widens to approximately 3.5 miles at it's extent (Figure 2). The data used by DEQ in determining the Source Water Assessment delineation areas are available upon request.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ, Pelican Point Subdivision, and from available databases.

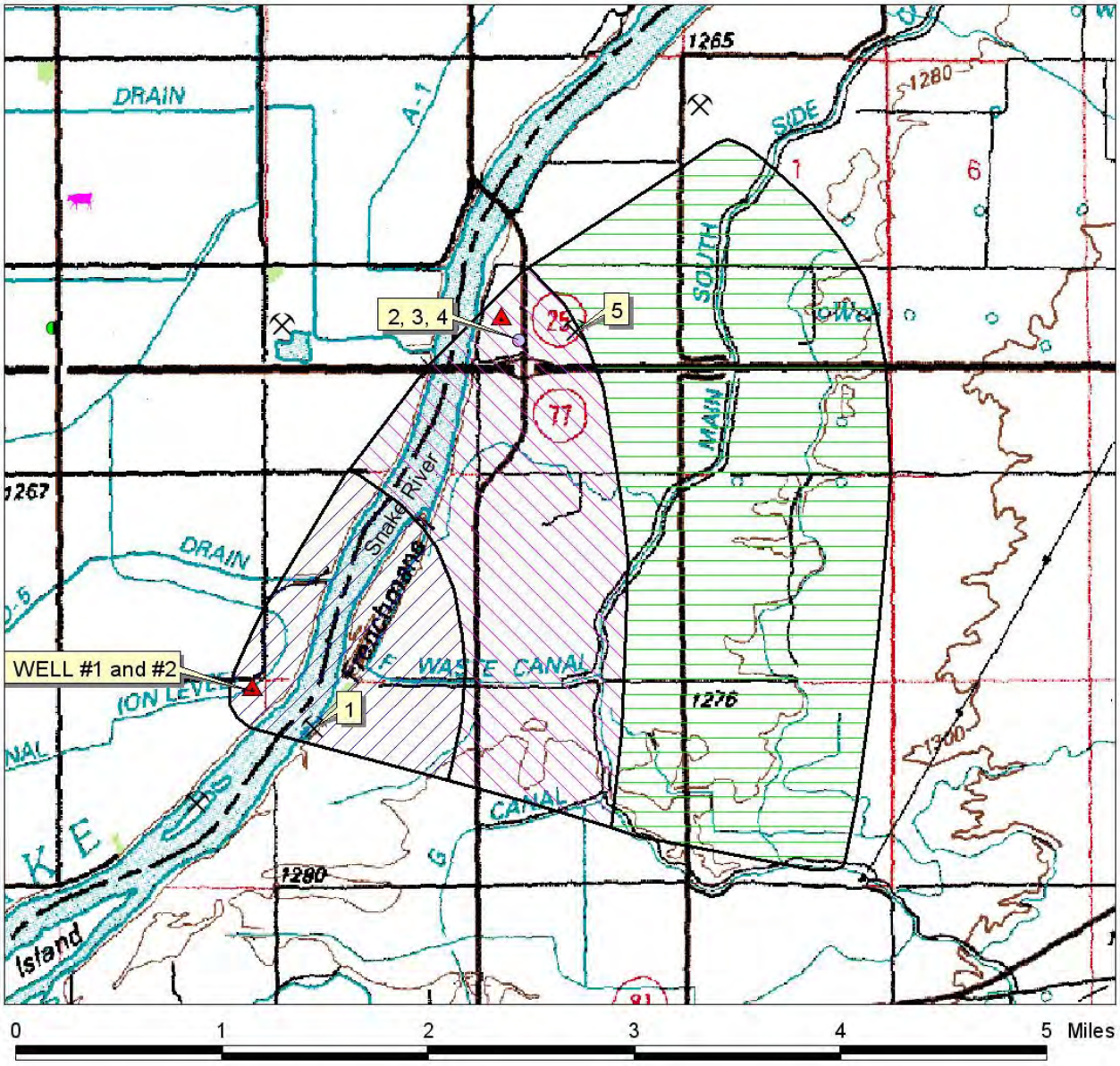
It is important to understand that a release may never occur from a potential source of contamination provided best management practices are used at the facility. Many potential sources of contamination are regulated at the federal level, state level, or both, to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, such as educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A contaminant inventory of the study area was conducted in September and October of 2004. This involved identifying and documenting potential contaminant sources within the Pelican Point Subdivision Source Water Assessment Area through the use of computer databases and Geographic Information System maps developed by DEQ.

The well's delineation contains 5 potential contaminant sources (See Appendix A). These potential contaminant sources include the point sources of a gold mine, a gravel pit, two leaking underground storage tanks (LUST), an underground storage tank (UST), and nonpoint sources including Highway 25 and the Snake River. If an accidental spill occurred in one of these sources, IOCs, VOCs, SOCs, or microbial contaminants could be added to the aquifer system and potentially affect the system's water.

Figure 2. Pelican Point Subdivision Delineation Map and Potential Contaminant Source Locations



Legend

Time of Travel Zones
- 0-3 Year
- 3-6 Year
- 6-10 Year
- Wellheads (PWS)
- Toxics Release Inventory - 1998
- CERCLA SITES
- RCRA Sites
- Business Mailing List
- AST Locations
- Recharge Points
- Deep Injection Wells
- Group 1 Sites

Dairy Locations
- Active
- Proposed

UST Sites
- Closed
- Open
- SARA Title III Sites
- LUST Sites
- NPDES Locations
- Cyanide Sites
- LandFills
- Waste Water Land App
- Mine Locations

N

IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

PWS# 5340031
Well #1 and #2

Section 3. Susceptibility Analyses

The water system's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Attachment A contains the susceptibility analysis worksheets. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors: the surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone above the producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination.

The hydrologic sensitivity rated low for both wells (see Table 1). Soils surrounding the wells are described as poorly- to moderately drained by the National Resource Conservation Service (NRCS), which inhibits the downward movement of contaminants. The vadose zone is composed of predominantly impermeable materials, and an aquitard exists above the producing zones of each well. Scores were increased because the water table depths in each well were less than 300 feet deep (70 feet in Well #1 and 246 feet in Well #2).

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in Sanitary Surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced.

System construction rated low for both wells (see Table 1). Well #1 was drilled in 1998 to a depth of 270 feet into "gray sandy clay," according to the well log. Water derives from a perforated interval of casing between 250 and 255 feet below ground surface (bgs). The 8 5/8-inch casing (0.250 inches thick) extends from the surface into the "gray sandy clay" at the 270-foot bgs level, and a bentonite annular seal was placed from the surface to "tan sandy clay" at 100 feet bgs. The well is located outside of any 100-year floodplains and, according to the sanitary survey, is protected from flooding.

Well #2 was also drilled in 1998, to a depth of 550 feet bgs. A 12 5/8 inch casing (0.375 inches thick) extends from the surface into "gray clay" at 162 feet bgs, and a 10-inch casing (0.360 inches thick) extends from the surface to 483 feet bgs into "gray sticky clay." An open hole exists from 483 feet bgs to 550 feet bgs. A bentonite annular seal was placed from a "packed sand" layer at 74 feet bgs to the surface.

The low scores were received because both wells are located outside of 100-year floodplains, their highest productions come from more than 100 feet below static water levels, both the casings and annular seals extend into low permeability units, and the wellheads and surface seals meet requirements. The only point received was due to missing information on the well logs regarding the pump test.

The Idaho Department of Water Resources *Well Construction Standards Rules* (1993) require all Public Water Systems (PWSs) to follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works* (1997) during construction. Some of the requirements include casing thickness, well tests, and depth and formation type that the surface seal must be installed into. Table 1 of the *Recommended Standards for Water Works* (1997) lists the required steel casing thickness for various diameter wells. Eight-inch diameter wells require a casing thickness of at least 0.322-inches, 10-inch wells require a casing thickness of 0.365 inches, and 12-inch wells require a casing thickness of 0.375 inches. Well tests are required at the design pumping rate for 24 hours, or until stabilized drawdown has continued for at least six hours when pumping at 1.5 times the design pumping rate. There is no information on the well log regarding pump test results; therefore the wells received an additional point in the system construction category.

Potential Contaminant Source and Land Use

Both wells rated high for IOCs (e.g. arsenic, nitrate), moderate for SOCs (e.g. pesticides) and VOCs (e.g. petroleum products), and low for microbial contaminants (e.g. bacteria). The potential contaminant sources, transportation corridors, and the amount of irrigated agriculture contributed to the contaminant inventory ratings. County-level nitrogen fertilizer use, county-level herbicide use, and total county-level agricultural chemical use are rated as high surrounding the well.

Final Susceptibility Rating

An IOC detection above a drinking water standard MCL, any detection of a VOC or SOC, or a detection of total coliform bacteria or fecal coliform bacteria at the wellhead will automatically give a high susceptibility rating to a well, despite the land use of the area, because a pathway for contamination already exists. Additionally, the storage or application of any potential contaminants within 50 feet of the wellhead will lead to an automatic high score. In this case, the well rated moderate for IOCs and SOCs, and low for SOCs and microbial contaminants. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0- to 3-year time-of-travel zone (Zone 1B) and much agricultural land throughout the delineation contribute greatly to the overall ranking.

Table 1. Summary of the Pelican Point Subdivision Susceptibility Evaluation

Source	Susceptibility Scores[1]									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	Final Susceptibility Ranking			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Well #1	L	H	M	M	L	L	M	L	M	L
Well #2	L	H	M	M	L	L	M	L	M	L

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Susceptibility Summary

In terms of total susceptibility, both Well #1 and Well #2 rated moderate for IOCs and SOCs, and low for VOCs and microbial contaminants. System construction and hydrologic sensitivity both rated low for each well. Land use scores were high for IOCs, moderate for VOCs and SOCs, and low for microbial contaminants (Table 1).

No microbial contamination has ever been detected in the well. The IOCs sodium, fluoride, and arsenic have been detected in tested water, however concentrations of each are significantly within allowable limits. The well exists in a county of high nitrogen fertilizer, herbicide, and agricultural-chemical use. In addition, the well's delineation crosses a priority area for nitrate, as well as the pesticide atrazine.

Section 4. Options for Drinking Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective drinking water protection program is tailored to the particular local drinking water protection area. A community with a fully developed drinking water protection program will incorporate many strategies, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). As most of the designated areas are outside the direct jurisdiction of the Pelican Point Subdivision, partnerships with state and local agencies and industry groups should be established and are critical to success. For assistance in developing protection strategies please contact the Twin Falls Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

For Pelican Point Subdivision, drinking water protection activities should first focus on maintaining the requirements of the sanitary survey. Any spills from the potential contaminant sources listed in Appendix A of this report should be carefully monitored, as should any future development in the delineated areas. Other practices aimed at reducing the leaching of agricultural chemicals from

agricultural land within the designated source water areas should be implemented. Additionally, a 50-foot radius of the wellhead should be kept clear of ALL potential contaminant sources and no chemicals should be stored or applied within the area.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineation is near urban and residential land use areas. Public education topics could include proper lawn and garden care practices, household hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of conservation to name but a few.

There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the U.S. Environmental Protection Agency. There are transportation corridors near the delineation, therefore the Department of Transportation should be involved in protection activities. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil Conservation District, and the Natural Resources Conservation Service.

Assistance

Public water suppliers and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Twin Falls Regional DEQ Office	(208) 736-2190
State DEQ Office	(208) 373-0502

Website: http://www2.state.id.us/deq

Water suppliers serving fewer than 10,000 persons may contact Ms. Melinda Harper, mharper@idahoruralwater.com , Idaho Rural Water Association, at 208-343-7001 for assistance with drinking water protection strategies.

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund≅ is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

References Cited

Crosthwaite, E.G., 1969. *Water Resources in the Goose Creek-Rock Creek Basins, Idaho, Nevada and Utah.* prepared by the U.S. Geological Survey in cooperation with Idaho Department of Reclamation, Water Information Bulletin No. 8.

deSonneville, J.L.J, 1972, *Development of a Mathematical Groundwater Model*, Water Resources Research Institute, University of Idaho, Moscow, Idaho, 227 p.

Garabedian, S.P., 1992, *Hydrology and Digital Simulation of the Regional Aquifer System, Eastern Snake River Plain, Idaho,* U.S. Geological Survey Professional Paper 1408-F, 102 p., 10 pl. I-FY92.

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Attachment A

Pelican Point Subdivision Susceptibility Analysis Worksheets

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.375)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

Ground Water Susceptibility Report Public Water System Name : PELICAN POINT SUBDIVISION Well# : 1
Public Water System Number 5340031 10/15/04 10:30:43 AM

1. System Construction		SCORE
Drill Date	05/28/1998	
Driller Log Available	YES	
Sanitary Survey (if yes, indicate date of last survey)	YES	2004
Well meets IDWR construction standards	NO	1
Wellhead and surface seal maintained	YES	0
Casing and annular seal extend to low permeability unit	YES	0
Highest production 100 feet below static water level	YES	0
Well located outside the 100 year flood plain	YES	0
Total System Construction Score		1

2. Hydrologic Sensitivity		
Soils are poorly to moderately drained	YES	0
Vadose zone composed of gravel, fractured rock or unknown	NO	0
Depth to first water > 300 feet	NO	1
Aquitard present with > 50 feet cumulative thickness	YES	0
Total Hydrologic Score		1

3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED CROPLAND	2	2	2	2
Farm chemical use high	YES	2	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		4	2	4	2

Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	2	2	2	2
(Score = # Sources X 2) 8 Points Maximum		4	4	4	4
Sources of Class II or III leacheable contaminants or	YES	4	2	2	
4 Points Maximum		4	2	2	
Zone 1B contains or intercepts a Group 1 Area	YES	2	0	2	0
Land use Zone 1B	Less Than 25% Agricultural Land	4	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		12	6	6	4

Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Land Use Zone II	Greater Than 50% Irrigated Agricultural Land	2	2	2	
Potential Contaminant Source / Land Use Score - Zone II		5	5	5	0

Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	YES	1	1	1	
Total Potential Contaminant Source / Land Use Score - Zone III		3	3	3	0
Cumulative Potential Contaminant / Land Use Score		24	16	20	8

4. Final Susceptibility Source Score	7	5	6	4

5. Final Well Ranking	Moderate	Low	Moderate	Low

1. System Construction		SCORE				
Drill Date		07/29/1998				
Driller Log Available		YES				
Sanitary Survey (if yes, indicate date of last survey)		YES	2004			
Well meets IDWR construction standards		NO	1			
Wellhead and surface seal maintained		NO	0			
Casing and annular seal extend to low permeability unit		YES	0			
Highest production 100 feet below static water level		YES	0			
Well located outside the 100 year flood plain		YES	0			
	Total System Construction Score		1			
2. Hydrologic Sensitivity						
Soils are poorly to moderately drained		YES	0			
Vadose zone composed of gravel, fractured rock or unknown		NO	0			
Depth to first water > 300 feet		NO	1			
Aquitard present with > 50 feet cumulative thickness		YES	0			
	Total Hydrologic Score		1			
3. Potential Contaminant / Land Use - ZONE 1A			IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED CROPLAND		2	2	2	2
Farm chemical use high		YES	2	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A		NO	NO	NO	NO	NO
	Total Potential Contaminant Source/Land Use Score - Zone 1A		4	2	4	2
Potential Contaminant / Land Use - ZONE 1B						
Contaminant sources present (Number of Sources)		YES	2	2	2	2
(Score = # Sources X 2) 8 Points Maximum			4	4	4	4
Sources of Class II or III leacheable contaminants or		YES	4	2	2	
4 Points Maximum			4	2	2	
Zone 1B contains or intercepts a Group 1 Area		YES	2	0	2	0
Land use Zone 1B	Less Than 25% Agricultural Land		4	0	0	0
	Total Potential Contaminant Source / Land Use Score - Zone 1B		12	6	6	4
Potential Contaminant / Land Use - ZONE II						
Contaminant Sources Present		YES	2	2	2	
Sources of Class II or III leacheable contaminants or		YES	1	1	1	
Land Use Zone II	Greater Than 50% Irrigated Agricultural Land		2	2	2	
	Potential Contaminant Source / Land Use Score - Zone II		5	5	5	0
Potential Contaminant / Land Use - ZONE III						
Contaminant Source Present		YES	1	1	1	
Sources of Class II or III leacheable contaminants or		YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of		YES	1	1	1	
	Total Potential Contaminant Source / Land Use Score - Zone III		3	3	3	0
Cumulative Potential Contaminant / Land Use Score			21	16	20	8
4. Final Susceptibility Source Score			7	5	6	6
5. Final Well Ranking			Moderate	Low	Moderate	Low

Appendix A

Pelican Point Subdivision
Potential Contaminant Source Inventory

Table 2. Pelican Point Subdivision, Main Well and Railroad Well, Potential Contaminant Inventory

SITE #	Source Description[1]	TOT Zone[2] (years)	Source of Information	Potential Contaminants[3]
1	Mine	0-3 YR	Database Search	IOC, VOC, SOC
2, 3, 4	UST Site, LUST Site, Site Cleanup Completed, Impact: Unknown	3-6 YR	Database Search	VOC, SOC
5	Gravel Pit	3-6 YR	Database Search	IOC, VOC, SOC
	Snake River	0-3 and 3-6 YR	GIS Map	IOC, VOC, SOC, Microbials
	Highway 25	3-6 YR	GIS Map	IOC, VOC, SOC

[1] UST = Underground Storage Tank; LUST = Leaking Underground Storage Tank
[2] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[3] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical